

Subject: Science

Activity - Laws of reflection

Chapter- Light

Class: VIII

Duration: 30 minutes

Nature of the activity: Group

Learning Outcome: Students will be able to analyse that angle of reflection is equal to angle of reflection.

What we have to do?

To verify the laws of reflection.

What do we require?

A plane mirror strip, a few knitting needles/bicycle spokes, a few sheets of chart paper.

What you need to know?

When a light ray strikes a plane mirror, the light ray reflects off the mirror. Reflection involves a change in direction of the light ray.

How do we proceed?

- **Teacher's activity**

Teacher will demonstrate the students how to perform the activity.

- **Student's activity**

1. Take two small rectangular pieces of thermocol. Make slits in them and fix a plane mirror. Make sure that the mirror is vertical.
2. Draw a line at an angle of about 45° to the mirror such as AO. Place a knitting needle on this line such that one of its ends touches the mirror.
3. Look at the image of the knitting needle in the mirror. Place another needle in line with this image. At the end of this needle mark a point such as B.
4. Remove the mirror and the needles and join point B with O.
5. At O draw a line ON perpendicular to the mirror. This is called the normal to the mirror.
6. Measure angle AON. This is called the angle of incidence.
7. Measure angle BON. This is called the angle of reflection.
8. Repeat the activity twice by placing the needle at different angles.
9. Record your data in the table given below.

What do we observe?

Obs. no.	Angle of incident $\angle i$	Angle of reflection $\angle r$	Is $\angle i = \angle r$?	
			Yes	No
1			☐	☐
2			☐	☐
3			☐	☐

What have you learnt?

According to the above activity the angle of incidence and angle of reflection are _____.

The two laws of reflection are as follows:

1. The angle of incidence and angle of reflection are _____
2. The incident ray, reflected ray and the normal all lie _____

What more can we do?

Carry out the same experiment to study the Reflection of Sound. Does sound also undergo reflection? Does it follow the same laws? Is there any minimum distance required for Reflection of Sound to take place.

EXTENDED LEARNING WORKSHEET:

1. 1 If the incident ray is along the normal, what would be the angle of reflection?

2. The angle between the incident ray and the reflected ray is 80° . What would be the angle of incidence?

3. The surface of a mirror is distorted as shown in Figure A. Name the points on it where the law of reflection will be valid.

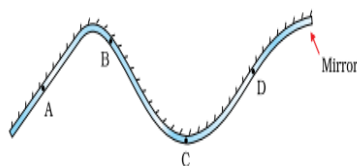


Figure A

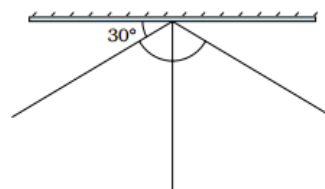


Figure B

In Fig B. find the angle of reflection.

4. Two mirrors A and B are placed at right angles to each other as shown in Fig.3.1

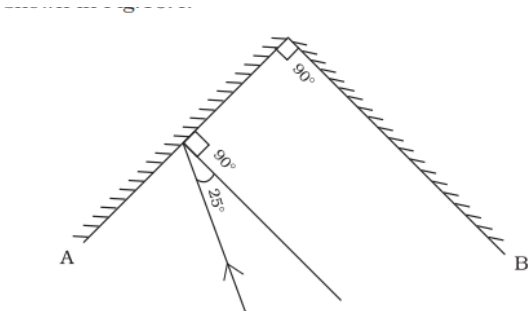


Fig 3.1

A ray of light incident on mirror A at an angle of 25° falls on mirror B after reflection. The angle of reflection for the ray reflected from mirror B would be

5. How many times is a ray of light reflected by two plane mirrors placed parallel and facing each other?
